F. M. ARNOLD.

LOADING APPARATUS.

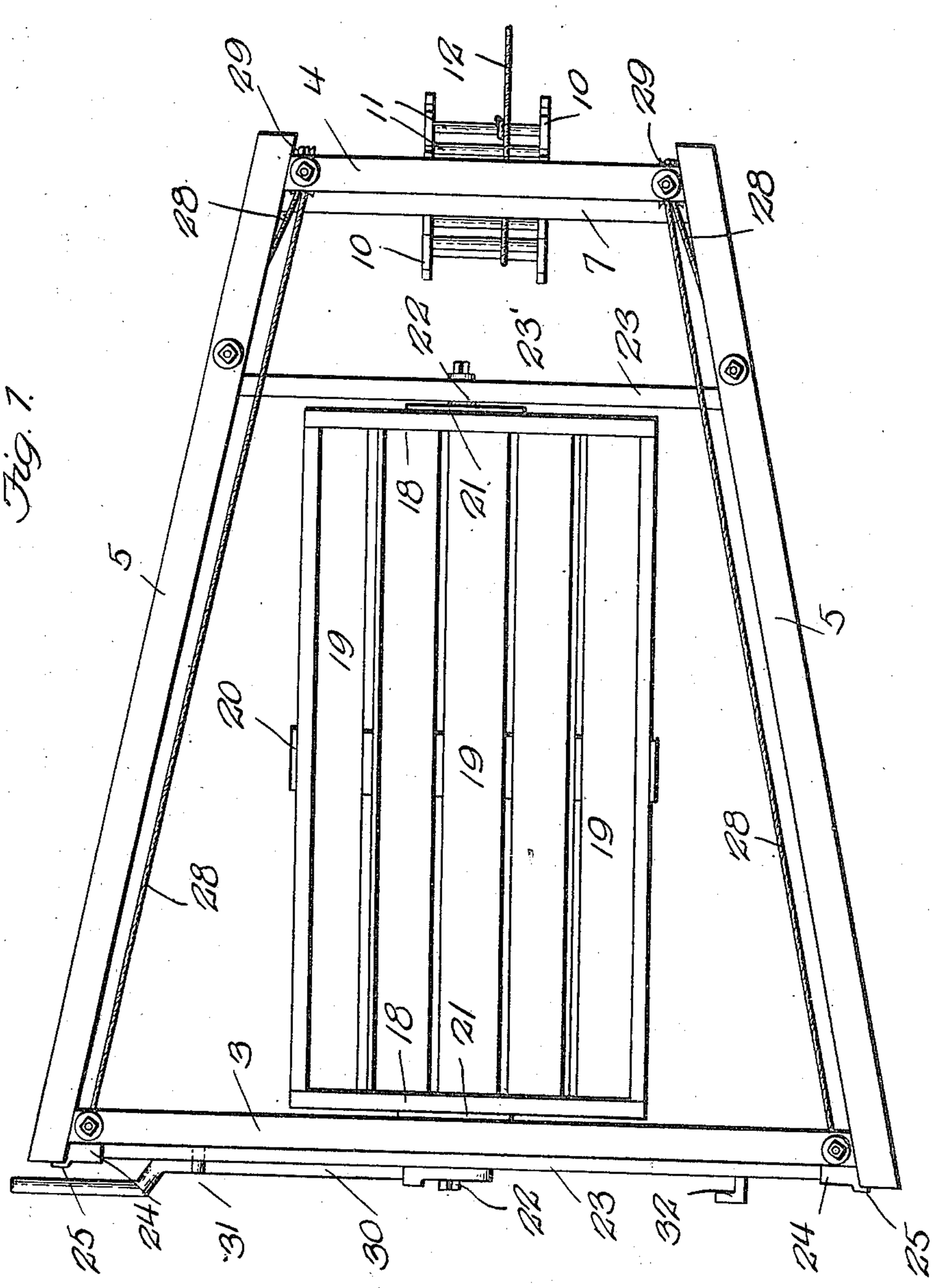
APPLICATION FILED MAR. 2, 1910.

964,364.

Patented July 12, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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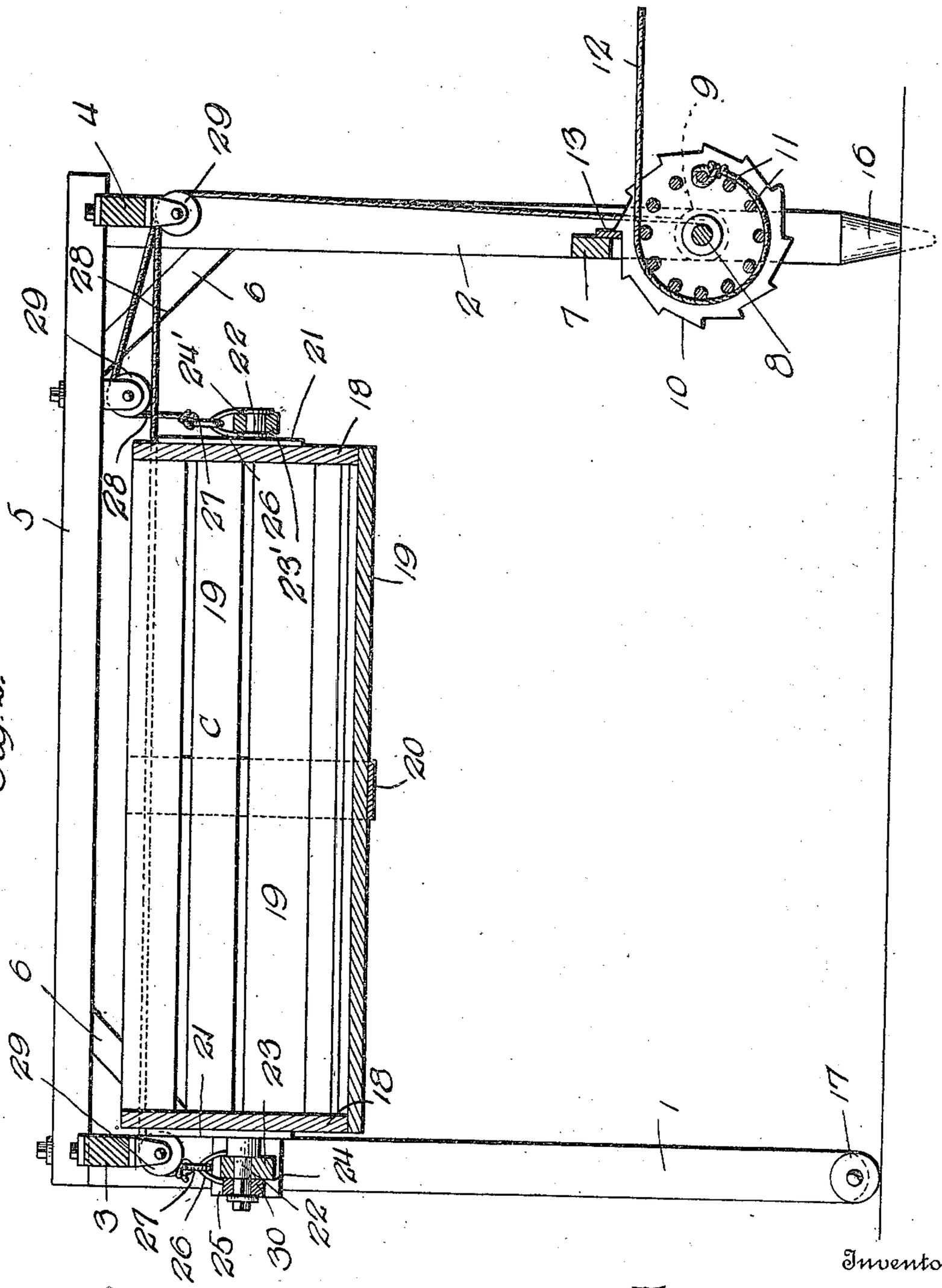

Fig. 2.

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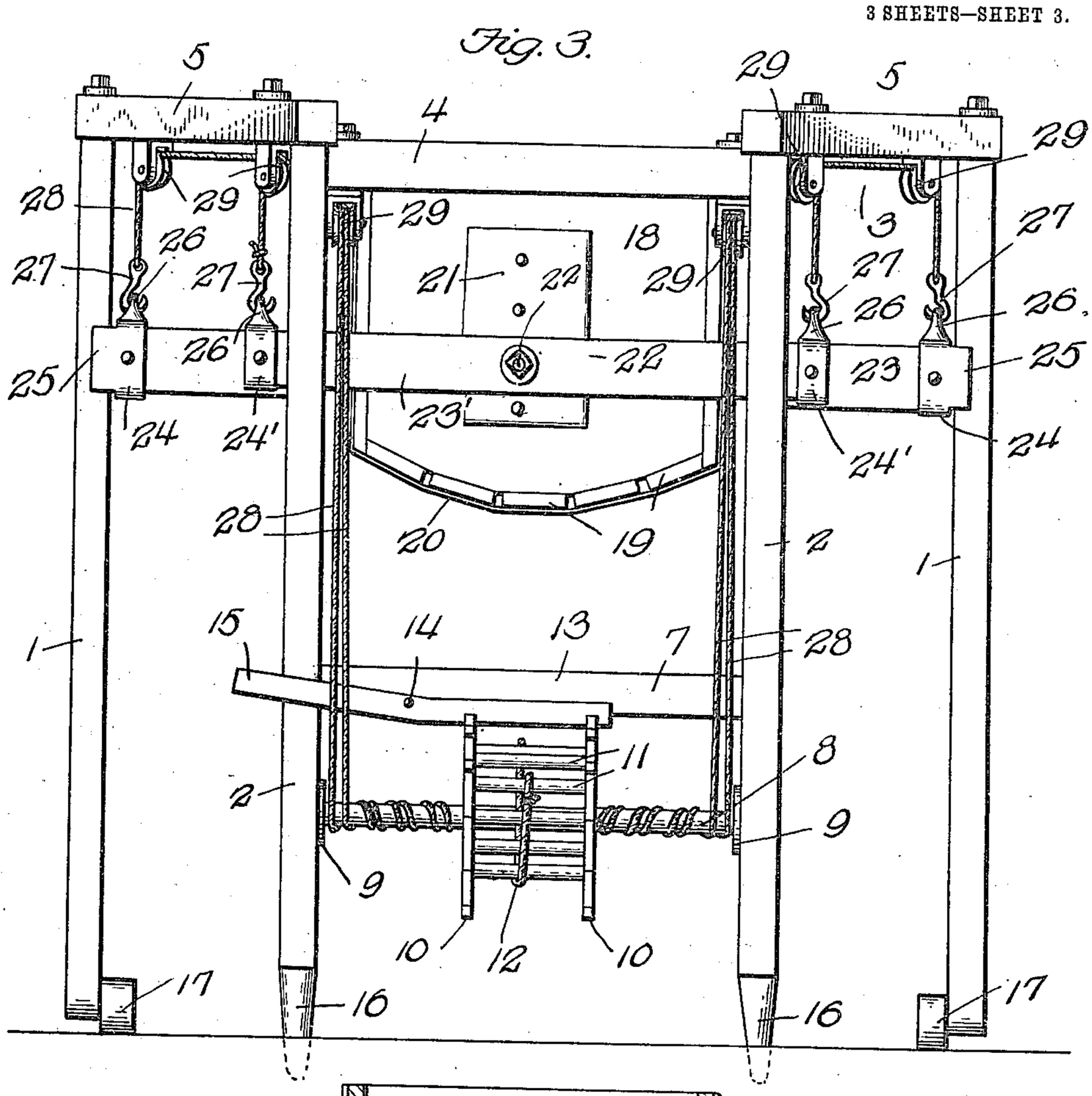
3 SHEETS—SHEET 3.

Fig. 3.



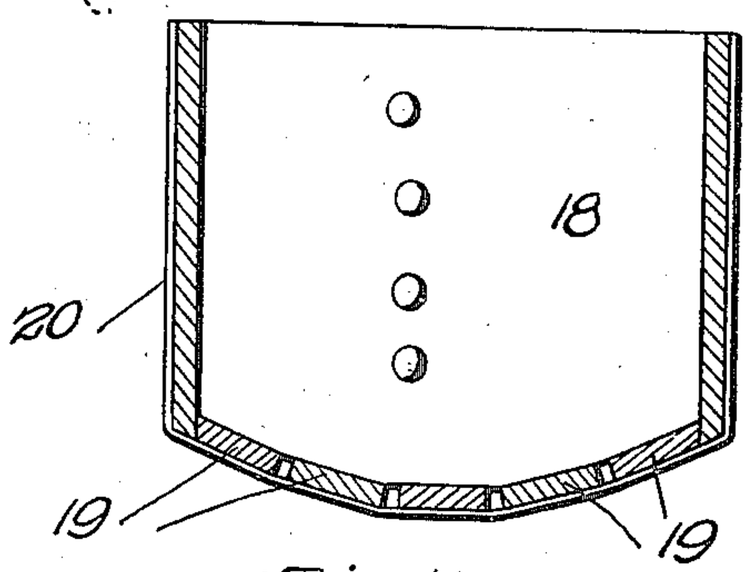


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK M. ARNOLD, OF CANANDAIGUA, NEW YORK.

LOADING APPARATUS.

964,364. Specification of Letters Patent. Patented July 12, 1910.

Application filed March 2, 1910. Serial No. 546,815.

To all whom it may concern:

Be it known that I, FREDERICK M. ARNOLD, a citizen of the United States of America, residing at Canandaigua, in the county of Ontario and State of New York, have invented new and useful Improvements in Loading Apparatus, of which the following is a specification.

This invention relates to loading apparatus, and it has for its object to provide a device of simple and efficient construction, whereby material may be loaded on to vehicles in a simple, efficient and labor-saving manner; the special object of the invention being to provide a machine whereby manure may be loaded upon manure spreaders in less time and with less labor than is required by loading the spreader in the ordinary manner by pitching manure directly into the box of the spreader from the ground.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings,—Figure 1 is a top plan view of a loading apparatus constructed in accordance with the invention. Fig. 2 is a sectional elevation of the same. Fig. 3 is an end elevation. Fig. 4 is a transverse sectional view of the carrier.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame of the improved loading apparatus includes four uprights or corner posts 1, 1 and 2, 2. The corner posts 1, 1, which may be regarded as the front posts, are connected at their upper ends by a cap beam 3 which is approximately twice the length of the cap beam 4 which in like manner connects the upper ends of the rear posts 2, 2, said cap beams 3 and 4 being disposed in parallel relation. Rearwardly convergent cap beams 5, 5 extend between the corner posts 1 and 2 at the front and rear ends of the frame, respectively. Braces 6 are used to reinforce the structure wherever they may be found necessary and useful.

The rear posts 2, 2 are connected at a suitable distance above the ground by a cross brace 7, and at a suitable distance below said cross brace bearings are provided for a shaft 8 equipped with flanges or collars 9 bearing against the inner faces of the corner posts. Suitably mounted upon the shaft 8 are ratchet disks 10 which are connected together by a plurality of rods 11 so as to constitute a drum upon which the rope 12 which constitutes the hoisting element is wound. A lever 13 fulcrumed at 14 upon the cross brace 7 extends across the flanges of the drum formed by the disks 10 to engage the ratchets therein and hold the drum securely against rotation in one direction. The projecting end of the lever 13 constitutes the handle 15 whereby it may be manipulated to temporarily disengage it from the drum which it normally engages by gravity.

The posts 2 at the rear corners of the frame structure are preferably sharpened or pointed at their lower ends to engage the ground, as indicated at 16, for the purpose of anchoring the frame in position for use. The front posts 1, 1 may be equipped with wheels or rollers 17 to enable the machine to be readily moved from place to place when the rear posts 2 are lifted from engagement with the ground.

A cradle or carrier C is provided, the same being composed of end pieces 18 connected by means of slats 19, said slats being reinforced intermediate the end pieces by means of a yoke-formed strap 20. The end pieces 18 are provided upon their outer sides with cleats 21 having trunnions 22 which are supported for rotation in cross bars 23 and 23′, the cross bar 23 at the front end of the frame structure being provided at the ends thereof with caps 24 having flanges 25 straddling the corner posts 1, 1, between which the cross bar 23 is thus supported for vertical slidable movement. The cross bar 23′ which supports the rear end of the cradle is likewise provided with caps 24′, said caps 24 and 24′ being suitably bolted or otherwise secured upon the respective cross bars. The caps 24 and 24′ are provided with eyes 26 with

which hooks 27 at the ends of the hoisting ropes 28 are engaged, said ropes being guided over suitably disposed guiding elements, such as pulleys 29, to the shaft 8 with which the ends of said hoisting ropes are suitably connected, said ropes being wound upon the shaft in a reverse direction to the winding of the hoisting rope 12 upon the drum which is mounted upon the shaft, as hereinbefore described. The cradle C is balanced eccentrically upon its bearings, said cradle being slightly top-heavy and so disposed that it will normally be inclined to tilt to one side, such tilting being, however, prevented by a lever 30 secured upon the trunnion 22 adjacent to the front end of the structure, said lever being normally held in position to restrain the cradle from tilting by means of a pin or bolt 31 detachably engaging the cross bar 23. When the pin 31 is withdrawn, the cradle will be inclined to tilt, and it will then be intercepted by a hook member 32 extending from the opposite end of the bar 23.

In the operation of this device, when the lever 13 is disengaged from the ratchet disks of the drum, the cradle will descend by gravity, unwinding the ropes 28 from the shaft 8 and winding the hoisting rope 12 reversely upon the drum. While the cradle is resting upon the ground it will be readily loaded by pitching the manure or other material into the same. By applying draft to the rope 12, the said rope is unwound from the drum, thereby rotating the shaft and winding the hoisting ropes 28 upon said shaft, thus elevating the cradle or carrier with its load, the cradle being sustained in upright position by the lever 30 engaging the pin 31. When the cradle has been raised to the desired height, the wagon or manure spreader which is to be loaded is backed in between the front corner posts 1, 1 until the bed of the wagon or spreader is directly beneath the cradle, when the driver will be in a position to reach the lever 30 and to withdraw the pin 31, after which by slightly pushing upon the lever the cradle will be tilted and the load discharged into the bed of the wagon or spreader. The cradle may now be readily restored to its initial or normal position, after which the loaded wagon or spreader rides out of the way, and the lever 13 is disengaged from the drum, thus permitting the cradle to descend by gravity, as before.

The hoisting rope 12 may be connected with any suitable source of power; one horse will be found sufficient to elevate the load; but the rope 12 may be guided over suitable guiding means to enable it to be actuated for the purpose of elevating the loaded cradle by connecting it with the wagon or spreader when the latter returns from the field, or the horse may be detached from the wagon if preferred, for the purpose of elevating the load.

It will be seen from the foregoing description that a loading apparatus has been provided which is simple in construction and efficient in operation and which is capable of being very readily transferred or moved from one place to another. By the use of this apparatus, manure spreaders may be loaded much more rapidly and efficiently than by pitching the material directly into the bed of the vehicle from the ground, as is now usually practiced.

Having thus described the invention, what is claimed as new, is:—

1. In a loading apparatus, a frame structure including front and rear corner posts, a brace connecting and spacing the rear corner posts, a shaft supported for rotation in said rear corner posts and having flanges abutting upon the inner faces of the posts, ratchet disks secured upon the shaft, a plurality of rods connecting the disks and cooperating therewith to constitute a drum, and a lever fulcrumed upon the brace connecting the posts, said lever extending across the ratchet disks of the drum to engage the same.

2. In a loading apparatus of the character described, a frame structure including front and rear corner posts, a shaft supported for rotation upon the rear corner post, a drum upon said shaft, a cradle provided at the ends thereof with trunnions, cross bars affording bearings for said trunnions, caps upon the ends of the cross bars provided with eyes, suitably guided hoisting ropes having hooks engaging the eyes, said hoisting ropes being connected at their opposite ends with and wound upon the drum-carrying shaft, and a hoisting rope secured upon and reversely wound upon the drum.

3. In a loading apparatus of the character described, a frame structure including front and rear corner posts, a cross bar having flanged caps engaging front corner posts, said caps being provided with eyes, a cross bar having terminal caps equipped with eyes, a cradle having trunnions whereby it is eccentrically pivoted upon the front and rear cross bars, and suitably guided hoisting elements connected with the eyes of the caps upon the cross bars.

4. In a loading apparatus of the character described, a frame structure including front and rear corner posts, a cross bar disposed intermediate the front and rear corner posts and relatively near the latter, a cradle having trunnions pivotally engaging the cross bars, said cradle being eccentrically supported for tilting, suitably guided hoisting elements connected with the cross bars, a

lever connected with the trunnion pivoted upon the front cross bar, a pin detachably engaging the cross bar in the path of the lever to restrain the cradle from tilting, and a hook member extending from the cross bar and lying in the path of the lever to intercept the latter when the cradle is tilted.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK M. ARNOLD.

Witnesses:
BRADLEY WYNKOOP,
JULIA F. PECK.